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A New Species of *Microctonus* (Hymenoptera: Braconidae) Parasitizing the Alfalfa Weevil^{1, 2}

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ABSTRACT

Microctonus colesi n. sp. is described from the eastern United States. This univoltine, unisexual species is a parasite of the alfalfa weevil, *Hypera postica* (Gyllenhal).

In 1963, Coles and Puttler reported an unidentified species of *Microctonus* from the alfalfa weevil, *Hypera postica* (Gyllenhal), in the eastern United States. Except for the coloration of the female, it was indistinguishable from *M. aethiops* (Nees). However, it is unisexual and oviposits in the larval stage of the host; *M. aethiops* is bisexual, and the female oviposits in the adult weevil. Subsequent studies uncovered morphological characters that were sufficient to distinguish this species from *M. aethiops*. With the increased emphasis placed on the study of natural enemies of the alfalfa weevil, it was essential that this new and possibly important parasite be named.

The terminology used for the following description is after Viereck (1916) and Marsh (1965).

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² *Hypera postica* (Gyllenhal) (Coleoptera: Curculionidae).

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Microctonus colesi NEW SPECIES

Female.—Length 2.9 mm excluding ovipositor. Head transverse, 1.2 times width of mesoscutum; frons bare, ocellar triangle sparsely pubescent, remainder of head moderately hairy; antenna not as long as body; flagellum 23 segments, uniform in width, diminishing in length distally, moderately hairy, first segment devoid of sensorial pits; scape about 1.6 times as long as wide, twice length of pedicel; malar line 0.7 times basal width of mandibles; occipital carina distinct laterally, weakening mesad, lacking for short distance medially; ocell-ocular line 1.1 times postocellar line; temple 0.8 times as broad as eye; face 1.3 times wide as long from antennal sockets to clypeus; anterior pits distinct; face slightly convex, finely rugose.

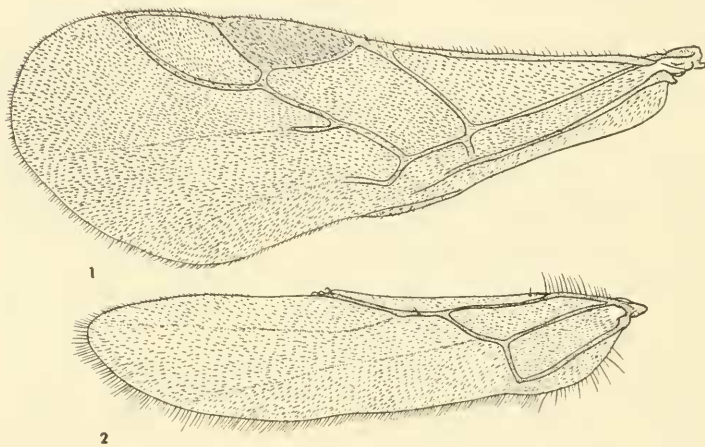


FIG. 1.—Forewing of adult female *M. colesi*. FIG. 2.—Hindwing of adult female *M. colesi*.

Mesoscutum shiny, with shallow, irregular punctations, heavier anteriorly, moderately hairy, lateral lobes shiny, smooth, sparsely hairy towards notauli, bare laterally, anterior and lateral margins carinate, stronger laterally; notauli (Fig. 3) complete, shallow, broad, with deep, large punctations, area of convergence large, foveolate, with a weak median carina; scutellar

furrow deep, divided by median carina, with 2 smaller longitudinal carinae in furrow on each side, carinate laterally; scutellar disc shiny, smooth, convex, with scattered hairs laterally; scutellum punctate laterally; mesopleural disc shiny, bare, smooth; mesopleuron moderately hairy, scattered, weak punctations above, wide diagonal impression below narrowing posteriorly, having broad punctations anteriorly and fine punctations posteriorly. Propodeum (Fig. 4) reticulate, strongly declivate posteriorly, excavated medio-posteriorly, with scattered hairs.

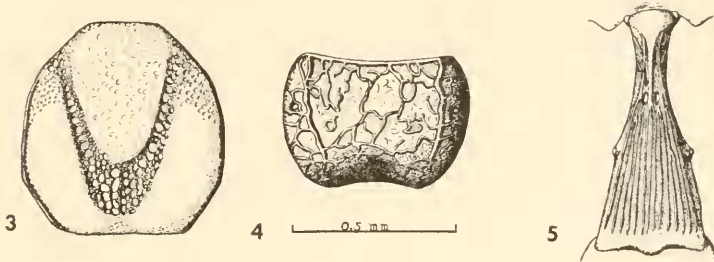


FIG. 3.—Mesoscutum of female *M. colesi* showing complete notauli.
 FIG. 4.—Propodeum of *M. colesi*. FIG. 5.—Petiole of *M. colesi*.

Radial cell 0.7 times length of stigma measured along wing margin (Fig. 1); first abscissa of radius about 0.3 times width of stigma and slightly shorter than nervulus; second abscissa of radius moderately bowed; nervellus longer than lower abscissa of basella and longest marginal cilia (Fig. 2).

Petiole (Fig. 5) 1.9 times longer than its apical width, with elongate dorsal pits just before dorsal midpoint; carinate laterally; basal portion with median carina; distal portion with several small subparallel carinae; scattered hairs subapically and laterally; remainder of abdomen smooth, shiny, with row of hairs subapical on each segment; no obvious suture between tergite 2 and 3; ovipositor and petiole subequal; ovipositor sheath slightly shorter than ovipositor.

Ovaries paired, with 16 ovarioles each (Fig. 6); ovary contains about 400 eggs; egg (Fig. 8) approximately 0.19 mm long, shorter and wider at midpoint than *M. athiops* (Fig. 9).

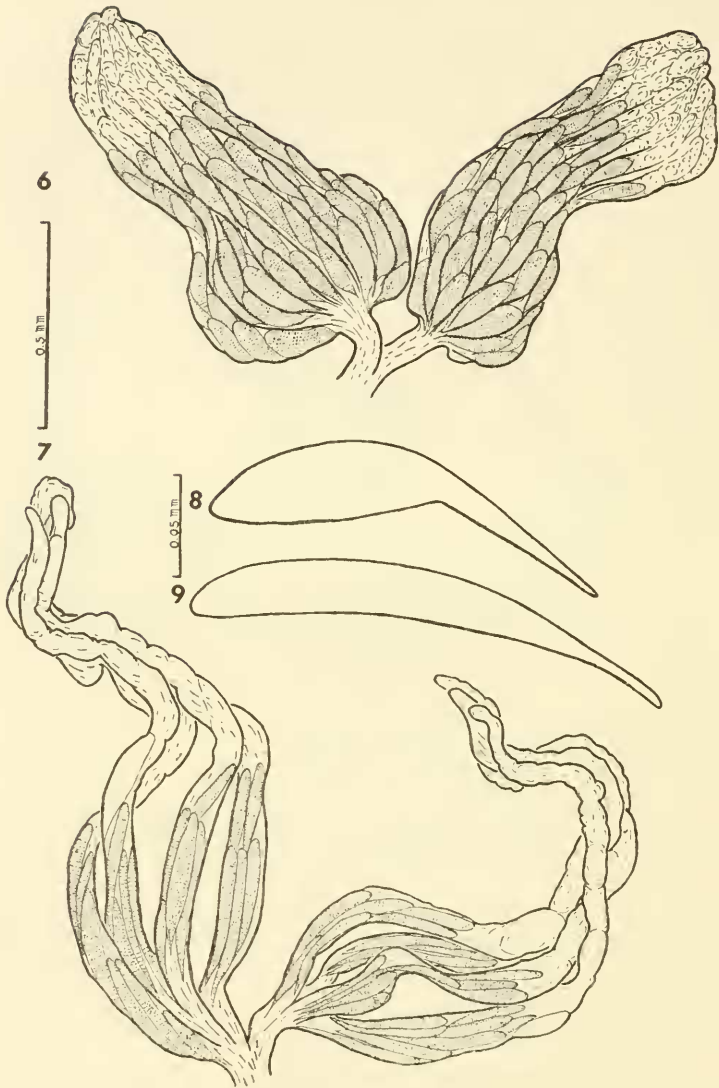


FIG. 6.—Ovaries of *M. colesi*. FIG. 7.—Ovaries of *M. aethiops* (Nees).
 FIG. 8.—Egg of *M. colesi*. FIG. 9.—Egg of *M. aethiops* (Nees).

Color of frons, area of ocellar triangle, thorax, petiole, and basal part of tergite II black; face, genae, temples, basal part of clypeus, scape, pedicel, remainder of abdomen dark reddish-brown; flagellum brownish-black; malar space and distal part of clypeus yellow-brown; legs and wing veins pale brown.

Male.—Unknown.

Variation.—Length 2.9–3.3 mm; flagellum 22–23 segments; reticulations of propodeum somewhat variable in configuration; color of head and abdomen often a dark reddish-brown to black; 12–18 ovarioles per ovary.

Remarks.—This species is quite close to *M. aethiops*, but it is more robust, and the female is darker. The distinct difference between species is the number of ovarioles per ovary. *M. aethiops* has 3–6 ovarioles per ovary (Fig. 7) with approximately 50 eggs per ovary; *M. colesi* has 12–18 ovarioles per ovary with an excess of 400 eggs per ovary.

Host.—Only known host is *Hypera postica* (Gyllenhal).

Distribution.—North Carolina, Maryland, Delaware, New Jersey, Pennsylvania, and Connecticut.

Holotype.—U. S. National Museum No. 69657. Female, reared from *H. postica* collected at Oxford, Pennsylvania, April 1963, by L. W. Coles.

Paratypes.—(Acad. Nat. Sci. Phila.) Connecticut: E. Woodstock, IV-12-67 (1); Storrs, IV-12-67 (1); both ex. *H. postica*, Stewart and Drea. Delaware: Smyrna, V-16-63 (2), V-22-64 (1); B. Puttler. New Jersey: Blawenburg, V-31-63 (3), R. W. Fuester; Lumberton, VI-5-63 (1), D. D. Jones; Moorestown, V-28-64 (1), F. A. Streams. (USDA, Moorestown, N. J.): New Jersey: Moorestown, V-1966 (3), ex. *H. postica*, L. W. Coles; Mt. Holly, VI-4-63 (1), L. W. Coles; VI-4-63 (4), R. W. Fuester; V-25-64 (2), B. Puttler. (U.S.N.M.): New Jersey: Moorestown, V-1966 (6), ex. *H. postica*, L. W. Coles, (1), J. J. Drea; V-1967 (5), ex. *H. postica*, W. H. Day. Pennsylvania: Downingtown, V-23-63 (9), L. W. Coles; Doylestown, V-31-63 (1), R. W. Fuester; Newtown, V-31-63 (3), R. W. Fuester; Oxford, IV-1963 (2), L. W. Coles. Unless noted, all specimens were collected by sweeping alfalfa.

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Description and Biometrics of Variation in
Maculation Pattern in *Papilio gallienus*
gallienus Distant (Lepidoptera:
Papilionidae)¹

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ABSTRACT

Four maculation patterns are commonly found within the discal cell, in each of which line segments OA, Oa₁, a₂A, and a₁B are present. It was found that in the female population line segment a₂A is 6.5% shorter, relative to segments Oa₁ and a₁B, and segment OA is 5% shorter relative to the same segments. Segment a₂A was found to be 1.2% shorter in females relative to line OA. Analysis of maculation pattern(s) of each specimen and collection date indicated a significant variation in pattern frequency throughout the four month period. Three different types of cell banding were identified. This character appears to be randomly distributed with regard to season. A larger sample would be required to determine if a non-random distribution of banding type and sex exists.

The purpose of this study is twofold: first, the description of previously unreported variation in the maculation pattern on the underside of the secondary wing of *P. gallienus gallienus* Distant

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